•	Currently Amended Claims	Support in the Specification
11. An ordered array of immobilized	11. An ordered array of a plurality of	The present invention contemplates an
oligonucleotides in the array's x and y	immobilized oligonucleotides in the	array of nucleic acid sequences,
coordinates with multiple copies of an	ordered array's x and y coordinates	comprising a solid support having at least
unique sequence of interest extending in	[[with]]	one surface; and a plurality of nucleic
the array's z dimension,		acid sequences attached to said surface
		of said solid support, [page 12, lines 23-
		25]
wherein each copy has an identical generic	wherein each of the plurality of	At each position (e.g., x1, y1; x1, y2;
oligonucleotide that is attached to the	immobilized oligonucleotides comprise	etc.), a oligonucleotide is immobilized. In
array's x and y coordinates and	two or more multiple copies of an unique	one embodiment (see FIG. 1A), the same
S	sequence of interest extending in the	oligonucleotide (i.e., an oligonucleotide
a	array's z dimension, and wherein each of	with the same generic nucleotide
<u>1</u>	the plurality of immobilized	sequence) is immobilized in every
OI	oligonucleotides [[copy]] also has an	position (or nearly every position, with
-*	identical a same generic oligonucleotide	some positions left empty or for controls)
ΔÌ	sequence that attaches the plurality of	on the solid support [page 10, lines 11-
<u>.ii</u>	immobilized oligonucleotides to the x and	15]
*	y coordinates of a solid surface that is	
tt et	attached to the array's x and y coordinates	
त्य	and	

wherein each copy also carries the unique	wherein each of the plurality of	Each circular DNA template is added to
sequence of interest repeated at least two	immobilized oligonucleotides has between	create a unique extended nucleic acid
times in the z dimension of the array and	the two or more copies of the unique	strand at each position on the solid
wherein between each of the unique	sequence of interest [[copy]] also earries	support, such extended strands
sequence of interest there is at least one	the unique sequence of interest repeated at	comprising two or more (and more
region that is complementary to at least a	least two times in the z dimension of the	typically three or more, and more
portion of the identical generic	array and wherein between each of the	preferably, ten or more, and still more
oligonucleotide attached to the array's x	unique sequence of interest there is at least	preferably more than fifty) copies of the
and y coordinates produced by:	one nucleic acid region that is	sequence of interest. Thereby, an array is
	complementary to at least a portion of the	created with redundancy in the z
	identical same generic oligonucleotide	dimension (i.e., out of the x and y plane of
	sequence attached to the array's x and y	the solid support). [page 10, lines 28-29;
	eoordinates-produced by:	page 11, lines 1-6]
		The invention contemplates that such
		regions that separate each copy of the
		sequence of interest can be additional
		regions that can hybridize to the generic
		immobilized oligonucleotide (e.g. the
		WWWW of FIG. 1A could be replaced
		with yet another region defined by

		redundancy in the z dimension (i.e., out
		of the x and y plane of the solid support).
		[page 11, lines 5-6]
and iii) a plurality of unique circular DNA	and iii) a plurality of unique circular DNA	plurality of unique circular DNA
templates, each circular DNA template	templates, each circular DNA template	templates, each circular DNA template
comprising an unique sequence of interest	comprising an unique sequence of interest	comprising a sequence of interest and a
and a region complementary to at least a	and a <u>nucleic acid</u> region <u>that is</u>	region complementary to at least a
portion of said sequence of said	complementary to at least a portion [[of]]	portion of the sequence of the
oligonucleotide, said unique sequence of	in said same sequence of said plurality of	oligonucleotides, the sequence of interest
interest being different for each circular	same generic oligonucleotides, wherein	being different for each circular
DNA template;	said unique sequence of interest being is	template; [page 19, lines 12-15]
	different for each circular DNA template;	
(b) immobilizing one oligonucleotide from	(b) immobilizing one oligonucleotide from	immobilizing one oligonucleotide from
said plurality of identical oligonucleotides	said plurality of identical same generic	the plurality of identical oligonucleotides
in each of said positions on said solid	oligonucleotides in each of said positions	in each of the positions on the solid
support to create an ordered array	defined by x and y coordinates on said	support to create an ordered array
comprising a plurality of identical	solid support to create an ordered array	comprising a plurality of identical
immobilized oligonucleotides, each of	comprising a plurality of identical	immobilized oligonucleotides; [page 19,
which is described by its position defined	immobilized same generic	lines 16-18]
by its x and y coordinates;	oligonucleotides at every x and y	

	coordinate on the solid surface, each of	
	which is described by its position defined	
	by its x and y coordinates;	
(c) adding to each immobilized	(c) adding to each immobilized same	adding to each immobilized
oligonucleotide of said ordered array a	generic oligonucleotide of said ordered	oligonucleotide of the ordered array a
circular DNA template from said plurality	array one of the [[a]] unique circular DNA	circular DNA template from the
of said unique circular DNA templates	templates from said plurality of said	plurality of the unique circular DNA
comprising the unique sequence of interest	eircular DNA template comprising the	templates under conditions such that the
under conditions such that each	unique sequence of interest-under	immobilized oligonucleotide hybridizes
immobilized oligonucleotide hybridizes to	conditions such that each of the	to the circular DNA template to create a
the circular DNA template to create a	immobilized <u>same generic</u>	plurality of primed circular templates,
plurality of circular templates hybridized to	oligonucleotides hybridizes to one of the	each primed circular template
immobilized oligonucleotides at positions	unique circular DNA templates to create a	comprising a different sequence of
defined by their x and y coordinates, each	plurality of circular templates each	<b>interest</b> ; [page 19, lines 18-23]
circular template comprising a different	hybridized to one of the immobilized	
unique sequence of interest; and	same generic oligonucleotides at positions	
	defined by their x and y coordinates, each	
	eireular template comprising a different	
	unique sequence of interest; and	

least two copies of said unique sequence of oligonucleotide has a position on the array immobilized oligonucleotide comprises at unique sequence of interest has a different unique sequence of interest, wherein said defined by its x and y coordinates, and is portion of a target sequence, whereby the polymerase to create an ordered array of dimension of each extended immobilized oligonucleotide is unique corresponds to extended immobilized oligonucleotides, interest extending in the z dimension by extended in the z dimension, a growing end of the sequence extending in the z-(d) extending each of said hybridized immobilized oligonucleotides using a the circular DNA template having the sequence corresponding to an unique wherein each extended immobilized the unique portion of the target. strand, such that each extended

immobilized oligonucleotide comprises at immobilized oligonucleotides to the x and oligonucleotides also has a same generic array's z dimension and wherein each of array defined by its x and y coordinates, growing strand, such that each extended immobilized oligonucleotides, wherein least two or more copies of said unique oligonucleotides using a polymerase to oligonucleotide sequence at the 5' end and is extended in the z dimension, a oligonucleotide has a position on the that attaches the plurality of extended (d) extending each of said plurality of y coordinates of the solid surface and sequence of interest extending in the circular templates hybridized to the create an ordered array of extended each extended immobilized the plurality of immobilized immobilized same generic

DNA template hybridizes with the generic and extending each of the primed circular support, such extended strands comprising immobilized oligonucleotide comprising two or more (and more typically three or copies of the sequence of interest. [page interest, thereby generating an ordered redundant array. [page 19, lines 23-25] and still more preferably more than fifty) immobilized oligonucleotide thereafter more, and more preferably, ten or more, create a unique extended nucleic acid Each circular DNA template is added at least two copies of the sequence of under conditions such that the circular 10, lines 28-29 and page 11, lines 1-5] being extended by a polymerase to strand at each position on the solid immobilized oligonucleotide, said templates to create an extended

	wherein each of the of the plurality of	
	immobilized oligonucleotides has	
	between the two or more copies of the	
	unique sequence of interest [[copy]] also	
	carries the unique sequence of interest	
	repeated at least two times in the $z$	
	dimension of the array and wherein	
	between each of the unique sequence of	
	interest there is at least one nucleic acid	
	region that is complementary to at least a	
	portion of the identical same generic	
	oligonucleotide sequence by the eireular	
	DNA template having the unique	
	sequence of interest, wherein said unique	
	sequence of interest has a different	
	sequence corresponding to an unique	
	portion of a target sequence, whereby the	
	end of the sequence extending in the z-	
	dimension of each extended immobilized	
	oligonueleotide is unique.	
23. An ordered array of immobilized	An ordered array [[of]] with a plurality of	The present invention contemplates an

array of nucleic acid sequences, comprising a solid support having at least one surface; and a plurality of nucleic acid sequences attached to said surface	of said solid support, [page 12, lines 23-25]	In this case, each immobilized	oligonucleotide comprises a region	comprising a different sequence, each	different sequence being complementary	to a sequence of interest to create a	unique extended nucleic acid strand at	each position on the solid support, such	extended strands comprising two or more	(and more typically three or more, and	more preferably, ten or more, and still	more preferably more than fifty) copies of	the sequence of interest. Thereby, an	array is created with redundancy in the z	dimension (i.e., out of the x and y plane of
immobilized oligonucleotides <u>attached to</u> [[in]] the <u>ordered</u> array's x and y coordinates [[with]] the <u>immobilized</u> oligonucleotides comprising two or more	multiple copies of a sequence of interest extending in the array's z dimension,	wherein each immobilized oligonucleotide	[[copy]] has a different unique sequence	attached to the array's x and y coordinates,	and wherein each of the different	sequences attached to the array's x and y	coordinates is [[being]] complementary to	the sequence of interest, and wherein at	least two or more copies of the different	unique sequence of interest are repeated	along the z dimension of the array	produced by:			
oligonucleotides in the array's x and y coordinates with multiple copies of a sequence of interest extending in the array's z dimension,		wherein each copy has a different unique	sequence attached to the array's x and y	coordinates, each different sequence being	complementary to the sequence of interest,	wherein at least two copies of the different	unique sequence are repeated along the z	dimension of the array produced by:							

		the solid support). [page 11, lines 20-21,
		22-23, page 12, lines 4-8]
a) providing: i) a solid support comprising	a) providing: i) a solid support comprising	In another embodiment of the present
a plurality of positions for	a plurality of positions for	invention, a method of generating an array
oligonucleotides, said positions defined by	oligonucleotides, said positions defined by	capable of hybridizing to fragments of a
x and y coordinates;	x and y coordinates;	target nucleic acid is contemplated,
		comprising providing a solid support
		comprising positions for
		oligonucleotides, the positions defined by
		x and y coordinates; [page 20, lines 20-
		23]
and ii) a plurality of pairs of corresponding	and ii) a plurality of oligonucleotides each	a plurality of oligonucleotides, each
oligonucleotides and circular DNA	having a different sequence that is	oligonucleotide comprising a sequence
templates, wherein each circular DNA	complementary to an unique target	complementary to a different portion of
template comprises a sequence of interest,	sequence of interest; and iii) a plurality of	the sequence of the target nucleic acid;
and at least two of said sequence of interest	unique circular DNA templates, each	and a plurality of corresponding
are different, and the corresponding	circular template comprising the unique	circular DNA templates, each circular
oligonucleotide for each circular DNA	target sequence of interest and a second	DNA template comprising a different
template comprises a sequence, wherein	nucleic acid region;	portion of the sequence of the target;
said oligonucleotide comprises a 5' end	pairs of corresponding oligonucleotides	[page 20, lines 23-27]
which is attached to the solid support and a	and circular DNA templates, wherein each	The circular DNA template comprises i)

3' end, and further wherein said	eircular DNA template comprises a	a first region comprising a sequence of
oligonucleotide comprises a sequence	sequence of interest, and at least two of	interest (shown in FIG. 1B as
complementary to a portion of the	said sequence of interest are different, and	ACGATAAAACC) and ii) a second
sequence of interest on the corresponding	the corresponding oligonucleotide for each	region (shown in FIG. 1B as QQQQetc.) is
circular DNA template;	eireular DNA template comprises a	employed. Because each immobilized
	sequence, wherein said oligonucleotide	oligonucleotide is unique, the region
	comprises a 5' end which is attached to the	having a sequence complementary to at
	solid support and a 3' end, and further	least a portion of the circular template
	wherein said oligonucleotide comprises a	permits hybridization only to the
	sequence complementary to a portion of	"corresponding" circular template; thus,
	the sequence of interest on the	the region permitting hybridization on
	eorresponding eireular DNA template;	the circular template is also the
		sequence of interest (FIG. 1B is merely
		illustrative and is not meant to limit the
		sequence or length of the sequence of this
		hybridizing region; indeed, regions larger
		than thirteen nucleotides are preferred)
		[page 11, lines 23-30, page 12, lines 1-2]
b) immobilizing one oligonucleotide in	b) immobilizing one oligonucleotide from	immobilizing each of the
each of said positions on said solid support	said plurality of oligonucleotides in each	oligonucleotides in one of the positions
to create an ordered array comprising a	of said positions defined by x and y	on the solid support to create an ordered

plurality of immobilized oligonucleotides,	coordinates on said solid support to create	array comprising a plurality of
each of which is described by its position	an ordered array comprising a plurality of	immobilized oligonucleotides; [page 20,
defined by its x and y coordinates	immobilized oligonucleotides <del>, each of</del>	lines 27-29]
	which is described by its position defined	
	by its x and y coordinates;	
c) adding to each immobilized	c) adding to each of the immobilized	adding to each immobilized
oligonucleotide of said ordered array a	oligonucleotides of said ordered array	oligonucleotide of the ordered array a
corresponding circular DNA template	[[a]] the corresponding unique circular	corresponding circular DNA template
under conditions such that said	DNA template that is complementary to	under conditions such that the immobilized
immobilized oligonucleotide hybridizes to	the immobilized oligonucleotide under	oligonucleotide hybridizes to the
said corresponding circular DNA template	conditions such that said immobilized	corresponding circular DNA template to
to create a plurality of circular templates	oligonucleotide hybridizes to said	create a plurality of primed circular
each of which is hybridized to its	eorresponding-circular DNA template to	templates; [page 20, lines 29-30, page 21,
corresponding immobilized	create an array with plurality of circular	lines 1-2]
oligonucleotide at a position defined by its	templates each of which is hybridized to	
x and y coordinates; and	its corresponding immobilized	
	oligonucleotide at a position defined by	
	its x and y coordinates; and	
d) extending said hybridized immobilized	d) extending said hybridized immobilized	extending the primed circular templates
oligonucleotides using a polymerase to	oligonucleotides using a polymerase to	to create an ordered redundant array of
create an ordered array of extended	create an ordered array of extended	extended immobilized oligonucleotides,

DNA template having an unique sequence extended in the z dimension such that each oligonucleotide has a position on the array comprises at least two copies extending at hybridized circular template by a circular oligonucleotide corresponds to the unique defined by its x and y coordinates, and is of interest, wherein said unique sequence dimension of each extended immobilized target sequence, whereby the 3' terminus corresponding to an unique portion of a immobilized oligonucleotides, wherein extended immobilized oligonucleotide sequence of interest contained in said the terminus in the direction of the z dimension, a growing strand, of the of interest has a different sequence extending in the direction of the zeach extended immobilized portion of the target

has a different sequence corresponding to oligonucleotide comprises at least two or whereby the 3' terminus extending in the wherein said unique sequence of interest array defined by its x and y coordinates, and is extended in the z dimension such interest extending at the terminus in the direction of the z dimension, a growing corresponds to the unique portion of the immobilized oligonucleotides, wherein an unique portion of a target sequence, more copies of the unique sequence of extended immobilized oligonueleotide having an unique sequence of interest, oligonucleotide has a position on the template by a circular DNA template contained in said hybridized circular direction of the z-dimension of each strand, of the sequence of interest that each extended immobilized each extended immobilized

dimension (i.e., out of the x and y plane of DNA template hybridizes and thereafter the solid support, such extended strands sequence of interest. Thereby, an array is the target nucleic acid. [page 21, lines 2polymerase to create a unique extended oligonucleotide comprising at least two copies of the portion of the sequence of nucleic acid strand at each position on preferably more than fifty) copies of the under conditions such that the circular preferably, ten or more, and still more Each circular DNA template is added the oligonucleotide is extended by a the solid support). [page 12, lines 2-8] comprising two or more (and more created with redundancy in the z typically three or more, and more each extended immobilized

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target.